Alpha Magnetic
Spectrometer NASA / DOE

Open Paper Management Tool
Open Items Report

National Aeronautics and
Space Administration

Wednesday, November 22, 2006

Open Paper Management Tool (OPMT) Statistics

Total Action Items:	***625***	***Total Action Items Open:***	***33***
Total Action Items Closed:	***592***	***Action Items Past Due:***	***19***

List of Action Items Past Due:

Action Item Number:	***Date Due:***
Action Item 05-042	*9/1/2006*
Action Item 05-043	*10/1/2006*
Action Item 05-054	*09/30/2005*
Action Item 05-069	*06/15/2006*
Action Item 05-074	*10/15/2006*
Action Item 05-101	*9/11/2006*
AMS_02-CDR-06	*8/15/2006*
AMS_02-CDR-08	*5/1/2006*

Action Item Number:	***Date Due:***
AMS_02-PDS_CDR-06	*10/5/2006*
AMS_02-PDS_CDR-08	*10/5/2006*
AMS_02-PDS_CDR-09-2	*10/5/2006*
AMS_02-Thermal_CDR-17	*10/15/2006*
AMS_02-TTCS_PDR-03	*10/15/2006*
AMS_02-TTCS_PDR-05	*10/1/2006*
AMS_02-TTCS_PDR-06	*10/15/2005*
AMS_02-TTCS_PDR-07	*7/15/2006*
MAG-Review-06	*11/1/2006*
MAG-Review-08	*11/8/2006*
MAG-Review-09	*9/20/2006*

Open Action Items Report

Open Item Number: 05-042 **RID Open Date:** 9/14/2005

Title: Helium Venting Hazard Analysis

Intiator(s):

Description: Provide hazard analysis for venting of helium from the main tank.

Action Item Information

Actionee(s): Chris Tutt/ESCG **Action Due Date:** 4/1/2006

Action: Take existing hazard analysis of helium venting presented to NASA and create stand-alone report for delivery to ESTEC.

Action Status: 11/20/06 - Date rolled to April 1st to better reflect need. Meeting at ESTEC planned for late April.
8/14/06 - Date rolled to September 1st.
6/5/06 - Necessary information received from SCL. In-work, C. Tutt.
3/30/2006 - Date changed again as analyst is not becoming any faster.
3/6/2006 - Date changed to 4/1 to account for slothful analyst.
11/14/2006 - Date changed to 3/1 to better reflect analyst workloads.

Open Action Items Report

Open Item Number: *05-043* ***RID Open Date:*** *9/14/2005*

Title: *Helium Venting Hazard Analysis*

Intiator(s):

Description: *Provide hazard analysis for venting of helium from the main tank.*

Action Item Information

Actionee(s): *Gaetan Piret/ESTEC* ***Action Due Date:*** *5/1/2006*

Action: *Upon delivery of hazard analysis described in 05-042, evaluate potential hazards to EMI and TV test chambers.*

Action Status: *11/20/06 - Date rolled to May 1st to roll with 05-042.*
8/14/06 - Date rolled to October 1st.
4/10/06 - Due date changed to 6/1/06 allow time after completion of 05-042.
11/12/2006 - Date changed to 4/1/2006 to match item 05-042.

Open Action Items Report

Open Item Number: 05-054 **RID Open Date:** 9/16/2005

Title: Leak Before Burst Analysis

Intiator(s):

Description: Determine whether current condensor tube design is acceptable to NASA safety community.

Action Item Information

Actionee(s): Chris Tutt/ESCG **Action Due Date:** 9/30/2005

Action: Obtain written concurrence from Glenn Ecord and Bill Manha that existing condensor tube and magnetic flange design and verification plan are acceptable.

Action Status: 11/20/06 - Telecon scheduled for 11/21 to get latest status from Johannes.
9/18/2006 - Leland to pulse Johannes
6/26/2006 - Awaiting design detail from Johannes before work can continue.
5/08/2006 - Disussions w/ Manha indicate that Safety Factor relief is possible; but need final design for tube sizing before they can commit.
11/10/2005 - Magnetic flange added to list.

Open Action Items Report

Open Item Number: 05-069 **RID Open Date:** 9/16/2005

Title: Thermal Tubing Support Beam

Intiator(s):

Description: Thermal Tubing Support Beam needs to be assessed for possible interferences with other hardware.

Action Item Information

Actionee(s): Stephen Harrison/SCL **Action Due Date:** 6/15/2006

Action: Assess cryocooler LHP and TTCS tubing support beam violations into magnet Keep Out Zone.

Action Status: 11/20/06 - P. Nemeth to pulse R. McMahon, comments not provided to Marco.
10/16/06 - R. McMahon suppied comments. AIDC assumes design.
9/18/06 - M. Capell to pulse Stephen regarding acceptability of violation to KOZ.
8/28/06 - Preliminary layout received. Awaiting confirmation from S. Harrison as to acceptability of violation to magnet Keep-Out Zone. Expect completion by 12/31/06. Need to press Stephen for acceptability of intrusion.
5/08/2006 - Magnet Systems Integration contract to be discussed in Boston next week. Date rolled to 6/15/06.

Open Action Items Report

Open Item Number: 05-074 **RID Open Date:** 10/28/2005

Title: CGSE Support at Pad

Intiator(s): Trent Martin

Description: It is not clear how the cryogenic GSE, particularly the piping, will be supported at the pad.

Action Item Information

Actionee(s): Robert Becker/MIT, Alexander Gretchko/MIT **Action Due Date:** 10/15/2006

Action: Provide details on how the GSE will be supported at the pad.

Action Status: 11/20/06 - Need to investigate standard documentation plan for this work. May be closed as standard work (C. Tutt).
10/16/06 - Date rolled to 11/15 after Cryo GSE meeting at KSC.
6/26/2006 - Date rolled to October 15th after Magnet Processing meeting at KSC.
5/15/2006 - Further discussion on handling of CGSE after PLBD close prelaunch is required.
3/24/2006 - Trent Martin to forward all data provided by KSC to Art Nelson for inclusion in ground safety package.
2/14/2006 - Alexander Gretchko waiting on information from KSC - Trent Martin to coordinate.

Open Action Items Report

Open Item Number: 05-081 **RID Open Date:** 10/28/2005

Title: Charged Magnet during Beam Testing

Intiator(s): Trent Martin

Description: Ferrous metals in the beam test location could interfere with the AMS-02 magnet.

Action Item Information

Actionee(s): Robert Becker/MIT **Action Due Date:** 1/1/2007

Action: Robert Becker to provide CAD model of AMS test beam area clearly identifying all ferrous metals in the area so that a loads assessment can be done on the magnet.

Action Status: 3/3/3006 - Action on hold until beam test location finalized. Due date changed to 1/1/2007
2/14/2006 - Requirement for flight magnet during beam test is under review. Action may be moot.

Open Action Items Report

Open Item Number: *05-099* ***RID Open Date:*** *6/22/2006*

Title: *Update the Radiators Report to reflect the radiator bolt analysis using the NSTS 08307 guidelines*

Intiator(s): *Bruce Sommer*

Description:

Action Item Information

Actionee(s): *Marco Molina/CGS* ***Action Due Date:*** *11/30/2006*

Action: *Update the Radiator Stress Report to reflect bolt analysis using the NSTS 08307 guidelines.*

Action Status: *11/20/06 - Insert samples sent last week. Not yet received at NASA. Marco to provide Shipment Tracking number.*
8/7/2006 - Radiator and Crate Structural Analysis Report ready on November 30, 2006. Two weeks after report of insert test (AMS_02-Thermal_CDR-17).

Open Action Items Report

Open Item Number: 05-101 **RID Open Date:** 9/8/2006

Title: Vent Pump Issue

Intiator(s): T. Martin

Description: SCL reported that existing Vent Pump is insufficient to cool vapor cooled shields (calculation was off by factor of 100); Helium would warm beyond Super Fluid state prior to launch. Other issues: Prelaunch time should be 184 hrs to account for launch holds; Cryocooler to Rad delta T is too large to operate cryocoolers at nominal power on Pad.

Action Item Information

Actionee(s): Stephen Harrison, Tim Urban, Trent Martin, Paul Nemeth **Action Due Date:** 9/11/2006

Action: 1: SH to investigate super cooling SFHe; 2: SH to determine cool down times; 3: SH to identify requirements for guard tank; 4: SH to investigate other pump options; 5: TM to explain air/nitrogen duct in Orbiter Keel; 6: PN to investigate later access on Pad; 7: SH to investigate using one additional ground only cryocooler.

Action Status: 11/20/06 - Final pump selection is in work.
10/16/06 - Recommended pump (Alcatel) is being investigated. ESCG working open actions.
9/18/06 - SCL investigating new pump - data available by October TIM. C. Clark and M. Molina to investigate cryocooler capability. Other actions on hold pending outcome of these investigations.

Open Action Items Report

Open Item Number: *AMS_02-CDR-06* **RID Open Date:** *5/1/2003*

Title: *AMS-CDR-1-17: Meteoroid/Orbital Debris Shielding*

Intiator(s): *E. Christiansen/NASA*

Description: *Shielding from meteoroid/debris impact is inadequate to meet protection requirements. Shielding of pressurized vessels on AMS-02 such as the vacuum case and TRD (as well as any other pressure vessel) is required to prevent catastrophic rupture of these tanks in the event of meteoroid/debris impact which would release high-velocity fragments creating a potentially serious safety issue for on-board crew. The assessed probability of no penetration (PNP) using specified environment models is 0.97 which is far below the specified 0.997 PNP requirement. Updating ballistic limit equations and models as described in the forward work plan does not appear adequate to show compliance with requirements. Additional or significantly enhanced shielding will likely be necessary to meet safety requirements.*

Action Item Information

Actionee(s): *Dana Lear/ESCG* **Action Due Date:** *8/15/2006*

Action: *Complete analysis and coordinate design of debris shields. To be completed by Phase III Safety.*

Action Status: *10/16/06 - Trent pressed Eric Christiansen - action to Ross to work with D. Lear to update model.*
6/26/2006 - R. Harold to work with Will Minter on model updates. Will is available until end of August.
05/03/05 - The AMS-02 modeling for the MMOD assessment was completed last week. Additionally, the BUMPER geometry runs have been completed. Since the input scripts have not been run in years, Dana Lear verifying/updating all inputs for both the shield ballistic response definitions (BLEs) and the mission parameters.

01/19/05 - L. Hill to get in touch with D. Lear to discuss what L. Hill needs for Phase II.

Open Action Items Report

Open Item Number: *AMS_02-CDR-08* **RID Open Date:** *5/1/2003*

Title: *Shear Analysis of Items in Enlarged Holes*

Intiator(s): *B. Ritter/GSFC*

Description: *Bolts attaching the support ring to the conical flange were assumed to transfer shear, even though they are in sloppy holes this is non-conservative.*

Action Item Information

Actionee(s): *Chris Tutt/ESCG* **Action Due Date:** *5/1/2006*

Action: *Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.*

Action Status: *11/20/06 - B. Sommer and C. Tutt to work with Paul Romine for closure. Not expecting letter from B. Ritter.*
8/14/06 - ES is happy with first look at plan but wants more time. ES wants B. Ritter to close. B. Sommer to get ES letter of approval.
6/26/06 - Bruce Sommer to close with Paul Romine and Dr. Lo instead of initiator. Inititator not involved at this time.
6/5/06 - Stress analysis complete, report in-work. Need to work with initiator to close when report complete.
7/22/2005 - Initial VC flange loads obtained with latest model. These loads will be used in the updated analysis.
6/17/2005 - SWG agrees that 08307 will only apply to safety critical fasteners.

Open Action Items Report

Open Item Number: *AMS_02-PDS_CDR-06* **RID Open Date:** *4/18/2005*

Title:

Intiator(s): *Tim Urban*

Description:

Action Item Information

Actionee(s): *Marco Molina* **Action Due Date:** *10/5/2006*

Action: *Re-evaluate thermal optical properties on the top of the PDS as there are no longer heaters located there (breakdown of MLI vs. white paint). QM & FM different ?*

Action Status: *11/20/06 - PDS Contract Issue*
/28/06 - Contract still in work. Work-around by using EM for initial testing. Roll date to 10/5.
7/7/06 - Investigate contract status at July TIM.
5/08/2006 - Contract to be in place by June; roll date to 7/1/06
4/10/06 - On-hold pending resolution of ETH/CGS contract.
8/2/2005 - Awaiting thermal analysis of revised worst hot case.

Open Action Items Report

Open Item Number: *AMS_02-PDS_CDR-08* ***RID Open Date:*** *4/18/2005*

Title:

Intiator(s): *Tim Urban*

Description:

Action Item Information

Actionee(s): *S. Alia* ***Action Due Date:*** *10/5/2006*

Action: *Add 0.03 µF per 3.2.2.2.2.A of SSP 57003, and add verification by design inspection or test.*

Action Status: *11/20/06 - PDS Contract Issue*
/28/06 - Contract still in work. Work-around by using EM for initial testing. Roll date to 10/5.
5/08/2006 - Contract to be in place by June; roll date to 7/1/06
4/10/06 - On-hold pending resolution of ETH/CGS contract.
11/7/2005 - All further PDS activities on hold until 6 Feb 2006.
8/22/2005 - CGS proposes release of updated document by 9/19.
8/15/2005 - Tim Urban to contact Sergio Alia and resolve remaining concerns. Closure expected by 9/5.

Open Action Items Report

Open Item Number: *AMS_02-PDS_CDR-09-2* **RID Open Date:** *4/18/2005*

Title:

Intiator(s): *Tim Urban*

Description:

Action Item Information

Actionee(s): *S. Alia* **Action Due Date:** *10/5/2006*

Action: *Update document for maximum operating temperature of 51°C (Section 3.2, requirement ID PDS-ENV-3).*

Action Status: *11/20/06 - PDS Contract Issue*
/28/06 - Contract still in work. Work-around by using EM for initial testing. Roll date to 10/5.
5/08/2006 - Contract to be in place by June; roll date to 7/1/06
4/10/06 - On-hold pending resolution of ETH/CGS contract.
11/7/2005 - All further PDS activities on hold until 6 Feb 2006.
8/22/2005 - CGS proposes release of updated document by 9/19.
8/2/2005 - MOT should be changed to match updated worst case hot temperature.

Open Action Items Report

Open Item Number: *AMS_02-Thermal_CDR-15* **RID Open Date:** *4/4/2005*

Title: *Inconsistent NAS1351 Bolt Yield Strengths*

Intiator(s): *Bruce Sommer/ESCG*

Description: *DISCREPANCY*
Yield strength for NAS1351 bolts in OHB report is not the same as the yield strength for the same fastener type in the CGS report. This is consistent for all OHB v.s. CGS reports.

Bolt NAS1351
OHB Yield Allowable 950 MPa (138 ksi)
CGS Yield Allowable 827 MPa (120 ksi)

Action Item Information

Actionee(s): *Marco Molina/CGS* **Action Due Date:** *11/30/2006*

Action: *Find the documentation that verifies the yield strength of the fastener and update all reports to include the same allowable for the same bolt type.*

Action Status: *11/20/06 - Awaiting results of Insert Test.*
/7/2006 - Radiator and Crate Structural Analysis Report ready on November 30, 2006. Two weeks after report of insert test (AMS_02-Thermal_CDR-17).
11/14/2006 - Date changed to 3/31/2006 to reflect contract negotiation status.
8/10/2005 - CGS proposes test data would be available to SWG by ATP+2 months. The final analysis report would be available 2.5 months after written acceptance by SWG.
4/25/2005 - Procurement specifications FFS86E for NAS1351 fasteners was sent to CGS and OHB on 04/25/05. Page 7 of the document shows a minimum yield strength for these bolts is 120 ksi.

Open Action Items Report

Open Item Number: *AMS_02-Thermal_CDR-17* **RID Open Date:** *4/7/2005*

Title: *Insert test and its applicability to different size of insert*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY*
Three inserts, with size 3 fastener and face sheet of material 2024, were tested. The requirement to test 12 more insert has been planned. The upcoming test will use 6061 material face sheet. Also, there are two types of inserts, namely size 3 and size 4. The test result based on size 3 and 2024 will be deemed applicable to size 4 and 6061. Rationale has to be provided to make this jump of application.

Action Item Information

Actionee(s): *Marco Molina/CGS* **Action Due Date:** *10/15/2006*

Action: *Test result has to be presented and rationale given for the test applicability to cover size 4 insert and different face sheet material 6061. Test proposal end of April. Perform test ASAP*

Action Status: *11/20/06 - Awaiting results of Insert Test.*
10/30/06 - Inserts to be shipped to T. Martin by end of week.
8/7//2006 - Date rolled to 10/15. Inserts ready on that date.
5/08/2006 - Date rolled to 7/2/2006 to reflect CGS Thermal contract status.
2/10/2006 - Test has been included in proposed CAST SOW.
8/8/2005 - CGS proposes ATP+2 months as projected test date.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-03* **RID Open Date:** *4/4/2005*

Title: *Evaporator tail need a redesign*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY:*
1. At the time of this delta CDR, section 6 still indicates a need for evaporator tail redesign due to large deformation. The large deformation is caused by evacuated vacuum case before launch.

SUGGESTED SOLUTION:
Need to present the evaporator tail redesign as soon as possible.

Action Item Information

Actionee(s): *Johannes Van Es/NLR* **Action Due Date:** *10/15/2006*

Action: *NLR to provide evaporator redesign details.*

Action Status: *11/20/06 - B. Sommer hopes to have this closed by 11/22.*
10/30/06 - Rev A of Analysis looks good. B. Sommer to work with Dr. Lo for closure.
9/18/06 - Antonio complete design. New report to B. Sommer. B. Sommer to review and discuss w/ Dr. Lo. Date rolled to 10/15/06.
4/10/2006 - Johannes is working to schedule a meeting at Nikhef prior to the April TIM with Bart and Antonio. New schedule to be established at TIM.
3/30/2006 - Structural analysis will be done by INFN.
12/14/2006 - Eric Perrin has completed new design. Bart Verlaat to perform structural analysis. Date TBD pending contract with NIKHEF.

Open Action Items Report

Open Item Number: AMS_02-TTCS_PDR-05 **RID Open Date:** 4/4/2005

Title: Incorrect Figure Title

Intiator(s): H. C. Lo/NASA-JSC

Description: DISCREPANCY:
Figure 15 is mention in section 6. But there is no figure 15.

SUGGESTED SOLUTION:
Correct the typo.

Action Item Information

Actionee(s): Johannes Van Es/NLR **Action Due Date:** 10/1/2006

Action: NLR to correct typos in next release of document.

Action Status: 11/20/06 - Telecon scheduled for 11/21 to get latest status from Johannes. Requires TTCB stress report update.
5/08/2006 - Date rolled to on-month after TTCS_PDR-03.
4/10/2006 - To be completed one-month after TTCS_PDR-03.
11/28/2005 - Based on new NIKHEF contract, due date changed to 2/6/2006.
11/14/2006 - Date changed to 1/3 to better reflect analyst workloads.
9/9/2005 - Typo will be corrected in next release of document.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-06* **RID Open Date:** *4/4/2005*

Title: *Installation deformation release*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY:*
1. It is not clear how the assembly induced deformation is released after assembly. In one instance, it indicates that the 2mm deformation will be released. And in the other instance, it indicates that the 10 mm deformation is not acceptable and requires a evaporator tail redesign.
2. It is not clear how to measure the induced installation deformation. Or is there such a procedure to measure the installation deformation.
SUGGESTED SOLUTION:
1. Clarification required.
2. Implement a procedure to measure the installation deformation and set a range of acceptable installation deformation.

Action Item Information

Actionee(s): *Johannes Van Es/NLR* **Action Due Date:** *10/15/2006*

Action: *NLR to clarify requirement and provide detail on how deformation will be measured.*

Action Status: *11/20/06 - Telecon scheduled for 11/21 to get latest status from Johannes. Requires TTCB stress report update.*
9/18/06 - Antonio complete design. New report to B. Sommer. B. Sommer to review and discuss w/ Dr. Lo. Date rolled to 10/15/06.
4/10/2006 - Johannes is working to schedule a meeting at Nikhef prior to the April TIM with Bart and Antonio. New schedule to be established at TIM.
3/30/2006 - Structural analysis will be done by INFN.
11/14/2005 - Chris Tutt to contact Roberto Battiston and determine appropriate actionee.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-07* **RID Open Date:** *4/4/2005*

Title: *Visual inspection of the weld and fracture analysis*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY:*
1. Since visual inspection will be the inspection method for post-test verification, when perform fracture analysis, the minimum crack size has to be conforming to the inspection method.
2. Is there a structural analysis performed on the welds, including fracture analysis, as required?
3. Welding is performed at room temperature. During operation, the weld will be at a much lower temperature. How do we guarantee that the weld will be performing at a much lower temperature, possibly due to residual stress?

SUGGESTED SOLUTION:
Present strength and fracture analysis.

Action Item Information

Actionee(s): *Johannes Van Es/NLR* **Action Due Date:** *7/15/2005*

Action: *NLR to provide strength and fracture analysis*

Action Status: *11/20/06 - Telecon scheduled for 11/21 to get latest status from Johannes. Requires TTCB stress report update.*
9/18/06 - B. Sommer and D. Rybicki to discuss closure with Dr. Lo.
5/15/2006 - D. Rybicki reviewed weld plan and is satisfied with process. Working to set up meeting with Dr. Lo to close RID.
11/28/2005 - Data received at JS and is under review.
11/14/2005 - Weld procedure is available and has been sent to Dan Rybicki/ESCG for review. Johannes Van Es/NLR to supply all documentation to Bruce Sommer by 11/18 for additional review.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-10* **RID Open Date:** *4/4/2005*

Title: *Negative safety margin*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY:*
Negative safety margins are shown in the analysis. Though the analysis is stated as rough analysis since detail information on components at this time is still not available, suggested remedy was not presented. Or different analysis approach is not attempted.

SUGGESTED SOLUTION:
Since this is a delta CDR, remedy for negative safety margin should be provided. The remedy can be re-design of the base plate/fasteners. Or the analysis can be re-done with different approach to show a positive safety margin. Leaving negative safety margin as presented is not desirable.

Action Item Information

Actionee(s): *Corrado Gargiulo/INFN, Xinmei Qi/SYSU* **Action Due Date:** *12/25/2006*

Action: *NLR to provide remedy for any negative margins of safety presented at PDR.*

Action Status: *9/18/06 - Xinmei has sent bolt calculations. NLR to finish analysis on bolts and components. Combined report to be issued by NLR. Date rolled to 12/25.*
4/10/2006 - Johannes to pulse X. Qi
3/3/2006 - Xinmei Qi has completed updated analysis and will provde report to Bruce Sommer for review.
11/14/2005 - Updated analysis will be presented at TWG meeting in Milano.
9/9/2005 - Updated analysis will be presented at TTCS CDR.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-11* **RID Open Date:** *4/4/2005*

Title: *Bolt and insert analysis*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY:*
1. how the bolt analysis is done is not presented in the subject document.
2. bolt and insert technical information is not presented in the document.
3. it is not clear that pre-load is considered in the bolt in the analysis.

SUGGESTED SOLUTION:
Provide information and specification on bolts and inserts used.
Provide bolt and insert detail analysis, including applicable document for bolt analysis and demonstrate that bolt analysis is compliant with the applicable document.

Action Item Information

Actionee(s): *Corrado Gargiulo/INFN, Xinmei Qi/SYSU* **Action Due Date:** *12/25/2006*

Action: *NLR to provide bolt details and analysis for TTCS box.*

Action Status: *9/18/06 - Xinmei has sent bolt calculations. NLR to finish analysis on bolts and components. Combined report to be issued by NLR. Date rolled to 12/25.*
5/15/2006 - Date changed to Sept. 1, 2006 after consultation with NLR/SYSU.
3/3/2006 - Xinmei Qi has completed updated analysis and will provde report to Bruce Sommer for review.
11/14/2005 - Updated analysis will be presented at TWG meeting in Milano.
9/9/2005 - Details to be provided at TTCS CDR.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-12* **RID Open Date:** *4/4/2005*

Title: *Finite element analysis approach and fastener analysis*

Intiator(s): *H. C. Lo/NASA-JSC*

Description: *DISCREPANCY:*
1. "All box masses (including inside components) are modelled as uniformly distributed over the baseplate top face…"" The box itself is not connected to the base plate. And the box has its own fastening point with USS. This assumption can be in error.
2. components/baseplate interface are connected with fasteners. It appears that there is no information on these. As such, no analysis on these fasteners.
3. No analysis provided on components within TTCB.

SUGGESTED SOLUTION:
Provide information when available.
Re-do analysis as appropriate.
The components inside TTCB has to be defined as soon as possible.

Action Item Information

Actionee(s): *Corrado Gargiulo/INFN, Xinmei Qi/SYSU* **Action Due Date:** *12/25/2006*

Action: *NLR to provide design detail and finite element analysis of TTCB components.*

Action Status: *9/18/06 - Xinmei has sent bolt calculations. NLR to finish analysis on bolts and components. Combined report to be issued by NLR. Date rolled to 12/25.*
5/15/2006 - Date changed to Sept. 1, 2006 after consultation with NLR/SYSU.
3/3/2006 - Xinmei Qi has completed updated analysis and will provde report to Bruce Sommer for review.
11/14/2005 - Updated analysis will be presented at TWG meeting in Milano.
9/8/2005 - Analysis to be provided at TTCS CDR.

Open Action Items Report

Open Item Number: *AMS_02-TTCS_PDR-20* **RID Open Date:** *4/4/2005*

Title: *Modes Missing*

Intiator(s): *Mike Capell/AMS*

Description: *DISCREPANCY:*
Usually a document like this contains a table summarizing the first N modes (their frequency and effective mass).

It is not noted that this is being/has been performed, just a few pictures (Fig 17,18,19) are included without reference.

Action Item Information

Actionee(s): *Johannes Van Es/NLR* **Action Due Date:** *12/25/2006*

Action: *NLR to provide more details in the structural analysis report.*

Action Status: *9/18/06 - Xinmei has sent bolt calculations. NLR to finish analysis on bolts and components. Combined report to be issued by NLR. Date rolled to 12/25.*
5/15/2006 - Date changed to Sept. 1, 2006 after consultation with NLR/SYSU.
3/3/2006 - Johannes Van Es to provide document to Mike Capell and Craig Clark for review.
11/14/2005 - Document to be released in time to support TWG meeting in Milano.
11/7/2005 - NLR proposes 12/1 for document release date.

Open Action Items Report

Open Item Number: *MAG-Review-01* **RID Open Date:** *8/9/2006*

Title: *Measurement of Helium Depletion during a Quench*

Intiator(s): *Robin Staffin/DOE*

Description: *Make measurement of the amount of helium that is used during a quench and recharge a test objective.*

Action Item Information

Actionee(s): *Stephen Harrison* **Action Due Date:** *4/15/2007*

Action: *Develop a plan to measure the helium that is depleted in a quench.*

Action Status: *10/30/06 - Detailed test procedure to be supplied by April 2007.*
8/21/06 - The measurement itself can only be done with the flight cryostat. Work required will include remodelling the quench cryogenics, and writing detailed procedure.

Open Action Items Report

Open Item Number: *MAG-Review-03* **RID Open Date:** *8/9/2006*

Title: *Current Lead Disconnect Design*

Intiator(s): *Robin Staffin/DOE*

Description: *Review and provide to the next review committee how your design shoices for the disconnect system for the current leads were made. In particular answer the following questions: What is the heat leak through the current leads if they are not disconnected, and why did the project choose to disconnect the current leads? Please provide the entire test data to date and that expected from the coming test program regarding the currrent leads including the reliability of the disconnect assembly.*

Action Item Information

Actionee(s): *Stephen Harrison* **Action Due Date:** *4/15/2007*

Action:

Action Status: *10/30/06 - Design decisions to be documented by April 2007.*
8/21/06 -Design decisions were made years ago, and it will take time to find all relevant information. Test program for current leads is complete.

Open Action Items Report

Open Item Number: *MAG-Review-04* **RID Open Date:** *8/9/2006*

Title: *Thermal Cycling in the MATF*

Intiator(s): *Robin Staffin/DOE*

Description: *Add at least one additional thermal cycle to the magnet testing in the MATF. For example: Step 7B - Warm the magnet system to room temperature and recool to 1.8K.*

Action Item Information

Actionee(s): *Stephen Harrison* **Action Due Date:** *12/15/2006*

Action: *Generate a test plan for MATF incorporating the thermal cycle with magnet warmed to room temp, and recooled to 1.8K.*

Action Status: *10/30/06 - Detailed test procedure to be supplied by December 2006.*
8/21/06 - This requires just inserting a number of additional steps in the test procedure. Cost and schedule resources to complete this action TBD.

Open Action Items Report

Open Item Number: *MAG-Review-05* **RID Open Date:** *8/9/2006*

Title: *Measurement of inter-coil joint resistance*

Intiator(s): *Robin Staffin/DOE*

Description: *Show how the resistance of the inter-coil joints is planned to be measured in the coming test program. (Related to magnetic field decay)*

Action Item Information

Actionee(s): *Steve Milward* **Action Due Date:** *4/15/2007*

Action: *Generate a test plan for measuring the inter-coil joint resistances.*

Action Status: *10/30/06 - Detailed test procedure to be supplied by April 2007.*
10/16/06 - Measurement of inter-coil joint resistances will be carried out during final testing of the flight magnet at SM rather than during the magnet test in its test rig. Reason for this is the presence of a persistent switch in the assembled flight magnet.

Open Action Items Report

Open Item Number: *MAG-Review-06* **RID Open Date:** *8/9/2006*

Title: *Redundancy of the Warm Helium System*

Intiator(s): *Robin Staffin/DOE*

Description: *Consider adding redundancy to the pressurized warm helium system for the switch that would incorporate two gas supply tanks.*

Action Item Information

Actionee(s): *Stephen Harrison* **Action Due Date:** *11/1/2006*

Action: *Evaluate redundancy concern.*

Action Status: *11/20/06 - Requires brief report to explain why we are not incorporating second tank. M. Capell to pulse Stephen.*
8/21/06 - Study will be required to look into effect on the failure modes of the warm helium system. Weight and cost resources to complete this action TBD.

Open Action Items Report

Open Item Number: *MAG-Review-07* **RID Open Date:** *8/9/2006*

Title: *Magnet Endurance*

Intiator(s): *Robin Staffin/DOE*

Description: *Present plans to measure the expected endurance on the system before flight.*

Action Item Information

Actionee(s): *Stephen Harrison* **Action Due Date:** *4/15/2007*

Action: *Document a plan to measure magnet endurance.*

Action Status: *10/30/06 - Detailed procedure by April 2007.*

Open Action Items Report

Open Item Number: *MAG-Review-08* **RID Open Date:** *8/9/2006*

Title: *High Voltage Testing*

Intiator(s): *Robin Staffin/DOE*

Description: *Add high voltage to ground (high-pot) testing to the MATF.*

Action Item Information

Actionee(s): *Steve Milward* **Action Due Date:** *11/8/2006*

Action: *Document a plan to perform high-pot testing of Magnet.*

Action Status: *10/30/06 - Need clarification from M. Capell.*
8/21/06 - Some clarification of requirements may be needed: high voltage testing of the magnet has specifically been exclude in the past.

Open Action Items Report

Open Item Number: MAG-Review-09 **RID Open Date:** 8/9/2006

Title: Leak Testing

Intiator(s): Robin Staffin/DOE

Description: Consider the American Vacuum Society (AVS 2.1) standard or the equivalent for leak testing.

Action Item Information

Actionee(s): Robin Stafford Allen **Action Due Date:** 9/20/2006

Action: Evaluate AVS standard for leak testing.

Action Status: 10/16/2006 - Robin supplied SM Leak Test Specification to D. Rybicki, awaiting comparison prior to closure.

Open Action Items Report

Open Item Number: *MAG-Review-10* **RID Open Date:** *8/9/2006*

Title: *SFHe feed-through verification*

Intiator(s): *Robin Staffin/DOE*

Description: *Provide test plans for verifying all superfluid liquid helium feed throughs and in particular the electrical feed-throughs.*

Action Item Information

Actionee(s): *Stephen Harrison* **Action Due Date:** *12/1/2006*

Action: *Document plan for verification of all feed-throughs.*

Action Status: *11/20/06 - M. Capell believes this is covered by Flight VC Leak test. To confirm.*

Open Action Items Report

Open Item Number: *MAG-Review-11* **RID Open Date:** *8/9/2006*

Title: *Test Readiness Review*

Intiator(s): *Robin Staffin/DOE*

Description: *Perform a Test Readiness Review with a committee of independent experts. Experts must have access to the full test plan.*

Action Item Information

Actionee(s): *Stephen Harrison?* **Action Due Date:** *1/15/2007*

Action: *Perform a Test Readiness Review with a committee of independent experts. Experts must have access to the full test plan.*

Action Status: *8/21/06 - More information and clarification of the requirements and logistics of this review are required.*